

# MEMORANDUM

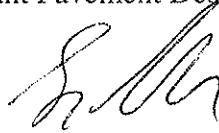
UTAH DEPARTMENT OF TRANSPORTATION

Construction and Materials Division

Date: March 7, 2010

**TO :** Department and Consultant Pavement Designers, RMEs, PMs

**FROM :** George Lukes, P.E.  
Engineer for Materials



**SUBJECT :** Rigid Pavement Design Inputs and Procedures

UDOT Central Materials issued a memo dated September 27, 2007 that outlined the concepts behind the AASHTO 1993 Design Process and the conservativeness of the 1998 UDOT Pavement Management and Pavement Design Manual. The memo was issued as a result of discussions at a Rigid Pavement Design workshop on September 20, 2007 with UDOT and Mike Darter of ARA.

The intent of this memo is to revert back to use of the 1998 UDOT Pavement Management and Pavement Design Manual input for rigid pavement designs. From this date on, the September 27, 2007 memo will no longer be an acceptable basis for rigid pavement designs. However, it should be noted that the Pavement Design MOI allows a designer to deviate from the "typical" design input based on engineering data and concurrence with the UDOT PME. The following list includes the same items that were addressed in the September 27, 2007 memo. The following list includes ranges and modifications that could be considered if testing, data and history are provided to justify the input values. However, it is ultimately the UDOT Region Pavement Management Engineers (PME) that would approve any deviations from the Pavement Design Guide MOI. This list should in no way imply that a UDOT PME is obligated to deviate from the Pavement Design Guide MOI:

- Traffic Projections – *Constrained by actual roadway capacity expected traffic movements*
- PCC Modulus of Rupture – *650 psi to 750 psi based on a AA(AE) mix*
- Mean Elastic Modulus of Slab – *4,000,000 to 4,100,000 psi based on a AA(AE) mix*
- Load Transfer Coefficient (when using dowels) – *2.7 to 3.2 based on bar size and tied shoulder type*
- Drainage Coefficient – *1.0 to 1.2 max with designed drainage system based on pavement drainage characteristics*
- Loss of Support Value – *use values found in Pavement Design MOI.*

While traffic projections should be constrained by roadway capacity, a cautious approach to linear projections should also be considered. Fixed growth rates may not be appropriate for long-term designs. These types of designs should be analyzed because as the capacity increases, the level of service will eventually decrease to a point eventually that would be consistent with a maximum volume i.e. no possible additional traffic growth.

The memo of September 27, 2007 included the need for Consultant Pavement Designers to discuss the pavement design concept for each project with the UDOT Region PMEs. This collaboration is expected to occur during the design process. Further, it is required to obtain final approval of every pavement design, including justification of inputs other than those found in the UDOT pavement design MOI.

If you have any questions or concerns, please don't hesitate to contact me.

cc: Steve Anderson  
File